

CLAIMS

1. A needle bar drive apparatus for a sewing machine comprising:
 - a dedicated drive source for driving a needle bar of the sewing machine
 - 5 to move up and down; and
 - control means for, when a sewing operation is to be performed, controlling said drive source to cause the needle bar to move up and down within a predetermined stroke range, but, when no sewing operation is to be performed, controlling said drive source to cause the needle bar to retreat to a
 - 10 predetermined evacuation position set above a top dead center within the predetermined stroke range.
2. A needle bar drive apparatus as claimed in claim 1 wherein said control means is also capable of varying a timewise pattern of upward and downward movement of the needle bar within the predetermined stroke range.
- 15 3. A needle bar drive apparatus as claimed in claim 1 wherein the stroke range is variable, in accordance with a thickness of an object for sewing, by variably setting a position of the top dead center within the predetermined
- 20 stroke range.
4. A needle bar drive apparatus as claimed in claim 1 wherein said drive source is a rotary motor that drives the needle bar to move up and down via a movement conversion mechanism for converting rotary movement of said
- 25 drive source into linear reciprocating movement.
5. A needle bar drive apparatus as claimed in claim 1 wherein the sewing

machine includes a plurality of sewing heads, and said drive source is provided for each of the sewing heads.